Water and Aquatic Habitat Effects of Catastrophic Wildfires
Congressional Field Hearing Testimony

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Ladies and gentlemen of the committee, my name is John Marshall and I currently serve as an assistant director of the Colorado Department of Natural Resources. It is my distinct honor to come before you and provide some information about the degraded water quality, aquatic habitat, and wildlife impacts that catastrophic fires have had, and continue to have on the State of Colorado.

As you well know, the 2002 Hayman fire was the largest wildfire in Colorado's recorded history, burning some 138,000 acres in and around the Pike National Forest – less than 20 miles from the Denver Metropolitan Area – at a cost of $40 million in suppression costs. The totality of the Hayman fire, the Missionary Ridge fire, and some 2,000 other wildfires statewide was unprecedented. I would like to share with the committee just a few of the impacts that these fires had on the natural environment in Colorado.

The Hayman fire was started on June 9, 2002. Severe drought and unseasonably dry weather, exacerbated by unnatural fuel accumulations throughout the forest, had left the Pike a virtual tinderbox. In a move not often seen by wildfire ecologists, the Hayman fire crowned and made a 12-mile run in half of a day's time. It destroyed almost everything in its path, including threatened and endangered species habitat and imperiled one of Denver's largest municipal water supplies.

Water Quality
The impact of catastrophic wildfires on forested watersheds is difficult to underestimate. The Denver Metro Area is primarily served by the Upper South Platte River drainage located within the Pike National Forest. The Denver Water Department, which supplies 1.2 million users in the Metro area, owns several storage facilities in the Upper South Platte drainage. One of the most significant storage facilities in the drainage is the Cheesman Reservoir, which is also at the heart of where the Hayman fire burned. In fact, some of the most severely burned stands are directly within the Cheesman drainage. If history is any indicator, this fact bodes very poorly for Denver's drinking water.

In 1996, the 12,000-acre Buffalo Creek fire – which is located just north of where the Hayman fire burned in the South Platte watershed – burned above a drainage leading to another Denver Water storage facility in the Upper South Platte basin. Heavy rains a month later caused flash flooding across the denuded landscape, washed out a state highway and deposited 600,000 cubic yards (hundreds of thousands of tons) of sediment into Strontia Springs Reservoir – the equivalent of 13 years of sediment load in a few short days. To date, the State Forest Service estimates that more than $25 million has been, or will be spent as a result of the comparably small Buffalo Creek fire.

Colorado's concern, and more acutely, the concern of Metro Area water users, is what will then happen to drinking water supplies when a heavy rain falls above the Cheesman Reservoir site in the middle of the Hayman fire burn area – an area roughly 10 times the size of the Buffalo Creek fire and above a reservoir roughly 6 times the size of Strontia Springs Reservoir. It is estimated that Denver's Upper South Platte River water supplies would be cut off for upwards of three days if a major event occurs in and around Cheesman reservoir. Perhaps most disturbing is the fact that this threat of incapacitation may persist for up to five years. We are looking at a potentially disastrous situation, despite the mammoth $7 million flooding mitigation effort by the Denver Water Department. Denver Water has constructed very large sediment

barriers, but granular granite sediment across such an immense landscape still has the potential to do tremendous damage to the reservoir and to the basin as a whole.

In short, the Hayman fire has already affected the quality of Denver's drinking water. Just three weeks ago, Highway 67 was blocked with more than five feet of burn-area refuse after a major rain event. Unfortunately, our forest professionals tell us that the threat of landslides and massive sedimentation will not subside until vegetation has been reestablished. Because of the heat and intensity of the fire, many of the soils are incapable of supporting vegetation without scarification or other expensive mitigation efforts.

Endangered Species

Recently, massive fish kills have been occurring across Colorado as a result of major rain events on last year's catastrophic wildfire sites such as the Hayman fire and the Million fire. Colorado's top aquatic wildlife biologists speculate that fish kills above the North Fork confluence of the South Platte river may be as high as 90 percent. While we will not know final figures for some time, the prospect of losing 90 percent of one of the state's premier cold water fisheries is devastating, to say the least. We have also witnessed nearly 70 percent mortality of brown trout along parts of the Rio Grande river where last year's Million fire burned in southern Colorado. We estimate that these fish kills will continue for upwards of five years.

The Pawnee Montane Skipper butterfly is a federally threatened species, listed under the Endangered Species Act (ESA) in 1987. It is found in only one place in the world and that is the Upper South Platte River watershed area. The total amount of suitable habitat burned since 1996 is 12,026 acres, or 48.3 percent of the mapped suitable habitat. Based on the USFS fire severity mapping for the four major fires since 1996, it is estimated that the skipper population has been extirpated from about 30 percent of its former habitat since 1996. The fires of 2002 alone burned 39% of known skipper habitat. The species is now believed to be in a drought-induced dormancy, so official population estimates will not be known for some time, although few skipper have been observed since the fire. Needless to say, the Hayman fire has put tremendous stress on an already sensitive species.

Over 40,000 acres burned within the boundary of designated critical habitat for the Mexican Spotted Owl. There were several other threatened or endangered species that lost habitat – either known or suitable – in the Hayman fire, including the Bald eagle, Preble's Meadow Jumping Mouse, and Canada lynx.

We also lost an undetermined number of big game species, such as elk. Because the fire burned so early in the season, elk calving was a factor and state officials estimate that cows and calves were lost due to the immobility of young at that point in the season. The Hayman fire did not burn the primary range of elk, but wildlife officials are still unsure about the total impact to the herds in that area.

Conclusion

Colorado experienced a wildfire season in 2002 unlike anything we have faced before. The largest two fires in our recorded history – the Hayman and Missionary Ridge fires, respectively – not only burned simultaneously, but represented nearly half of the total acreage burned in the entire state in 2002 – well over half a million acres in all. There are contributors to unnatural wildfires like these that are beyond our control, such as weather and drought. But the unmitigated fuel levels across Colorado's 22 million acres of forested lands is not beyond our control.

The federal government owns two-thirds of Colorado's forested acres. Reducing the fuel levels on those lands is a monumental task with which Congress will have to wrestle. There are enormous roadblocks that the federal land management agencies are facing in their effort to reduce dangerous fuels throughout the West. We know that the actions we are asking the federal agencies to take will come at significant costs – though these costs can and should be reduced through effective tools like stewardship contracting. But we would ask Congress to keep in mind the cataclysmic costs that inaction would have on the landscapes of our forests.

At the state level, Colorado has taken the initiative to address forest health conditions. Colorado Governor Bill Owens has now signed into law a bill requiring state land management agencies to manage state-owned forested lands to reduce the threat of catastrophic wildfire and to improve wildlife habitat and water quality. The only problem is that this bill only deals with state-owned lands, some 1% of Colorado's forests.

Catastrophic wildfires like that of the Hayman can be avoided through aggressive and coordinated fuels reduction treatments. We know thinning works. Science and research support these findings. Treatments in

and around the Hayman fire dramatically altered fire behavior. But to be effective, treatments must occur on a landscape scale. It is for these reasons, among many others, that the State of Colorado whole-heartedly endorses the Bush Administration's Healthy Forests Initiative and the Healthy Forests Restoration Act now before the Senate.

Colorado has passed legislation that will allow us to use thinning to restore healthy ecosystems in state-owned forests. But we must have action from the federal government to provide thinning on a landscape scale in Colorado. Our best efforts simply cannot effect the volume necessary to avoid Hayman-type catastrophes in the future unless they are mirrored by federal land managers. Nothing short of that will provide the necessary protections for our precious air, water, and wildlife.

Our analysis provides the following findings:

1. The key to reducing the risk of catastrophic fire in Colorado is to return Colorado's forests to a more fire resistant, resilient condition.

2. There are active management techniques that can speed up the process of returning forests to a more natural, fire resistant condition.

3. Obsessive focus on short-term species protection impedes long-term habitat protection and sustainable ecosystems.

DISCLOSURE REQUIREMENT

Required by House Rule XI, clause 2(g)

and Rules of the Committee on Resources

A. This part is to be completed by all witnesses:

1. Name:

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4. Organization you are representing:

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5. Any training or educational certificates, diplomas or degrees or other educational experiences which add to your qualifications to testify on or knowledge of the subject matter of the hearing:

B.A. in Political Science from Mesa State College, Colorado

M.P.A. with a certificate in Environmental Policy, Management, and Law from the University of Colorado

6. Any professional licenses, certifications, or affiliations held which are relevant to your qualifications to testify on or knowledge of the subject matter of the hearing:

7. Any employment, occupation, ownership in a firm or business, or work-related experiences which relate to your qualifications to testify on or knowledge of the subject matter of the hearing:

8. Any offices, elected positions, or representational capacity held in the organization on whose behalf you are testifying:

B. To be completed by nongovernmental witnesses only:

Any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 2000, from the U.S. Department of Agriculture and the U.S. Department of the Interior, the source and the amount of each grant or contract:

None

Any federal grants or contracts (including subgrants or subcontracts) which were received since October 1, 2000, from the U.S. Department of Agriculture and the U.S. Department of the Interior by the organization(s) which you represent at this hearing, including the source and amount of each grant or contract:

None

3. Any other information you wish to convey which might aid the members of the Committee to better understand the context of your testimony:

None